



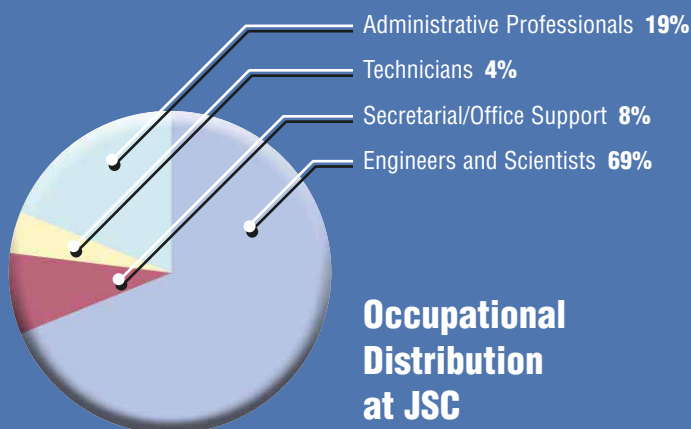
The People of JSC

JSC is a positive force in the community it calls home.

With a measurable workforce of federal and contractor employees, we impact the local economy and beyond.

Our workforce is a varied, talented and highly educated team that enhances the quality of our mission.

Probably the most identifiable employees that work at JSC are our astronauts and engineers. Yet we employ a wide array of professionals who support our mission. Our workforce consists of skilled clerical support, photographers, graphic artists, computer specialists, educators, biologists, business specialists and many more.



In FY 2001, JSC contributed more than \$2 billion to the local economy, largely through worker salaries, contracts, grants and local purchase of goods and services. The Center for Economic Development at the University of Houston-Clear Lake (UHCL) shows that 16% of the local workforce is directly employed in the aerospace industry. Center and contract personnel are educated and highly skilled: 1,505 have a bachelor's degree and 779 hold at least one graduate degree. The JSC workforce holds more than 209 doctorate degrees. At the end of FY 2001, 2,862 civil servants and 13,782 contractors were employed at or near the Center. A total of 633 companies and organizations worked on Center contracts, grants and agreements last year, including awards equaling \$53 million to Texas colleges and universities and \$5.8 million to nonprofit institutions.

International cooperation to build and operate the International Space Station calls for strong ties on the ground. Our Russian partners not only contribute a significant amount of hardware, they also provide their control center at Korolov as well as their training facilities at the Gagarin Cosmonaut Training Center. JSC personnel live and work in Russia to train astronauts on Russian-built parts of the International Space Station, track production of hardware, develop multi-element procedures, support testing to ensure our parts work together, and serve as liaisons to maintain the strong American-Russian team relationship we have developed over the years. Additionally, the NASA infrastructure in Korolov provides the capability for NASA personnel to safely operate the U.S. Segment of the International Space Station if command and telemetry capability is temporarily lost in Houston.



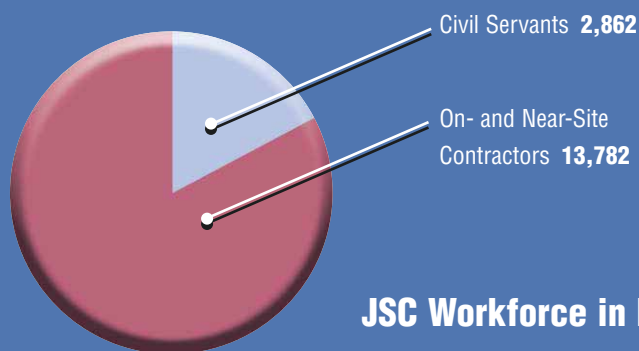


Astronauts

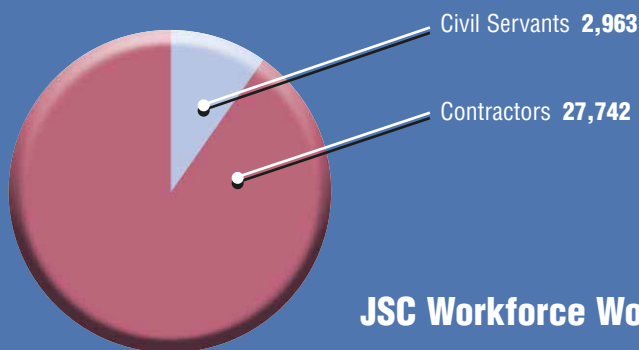
Our astronauts are the most recognizable of the JSC workforce. JSC is home to the nation's astronaut corps and is responsible for preparing explorers from both the U.S. and our partner countries for the demands of living and working in space. About 119 men and women with primarily scientific and military backgrounds make up NASA's active astronaut corps. Once trained, astronauts are eligible for flight assignment as shuttle commanders or pilots, mission specialists, or space station Expedition commanders or flight engineers. As such, they may conduct spacewalks, operate the shuttle and station's robot arms and conduct scientific research. There are two classifications of astronauts, pilot astronauts and mission specialist astronauts.

Pilot Astronauts Pilot astronauts play a key role in shuttle flights, serving as either commander or pilot. During flights, commanders are responsible for the vehicle, the crew, mission success and safety – duties analogous to those of the captain of a ship. During flights, commanders and pilots may manually fly the shuttle during precise rendezvous and docking operations with the International Space Station, or orbiting satellites such as the Hubble Space Telescope.

Mission Specialist Astronauts Mission specialist astronauts work with the commander and the pilot, and are responsible for coordinating shuttle operations in the following areas: shuttle systems, crew activity planning, consumables usage and experiment/payload operations. Mission specialists are trained in the details of the shuttle's onboard systems, as well as the



JSC Workforce in Houston



JSC Workforce Worldwide





operational characteristics, mission requirements/objectives and supporting equipment/systems for each of the experiments conducted on their assigned missions. Mission specialists may perform EVAs, or spacewalks, operate the shuttle or station robotic arms, and are responsible for payloads and specific experiment operations.



Expedition Crews Both pilot astronauts and mission specialist astronauts are eligible for long-duration spaceflight assignments on board the International Space Station. As Expedition crewmembers, either may serve as an Expedition commander or flight engineer. They train both in the U.S. and Russia, speak English and Russian,

become familiar with all aspects of space station systems, may perform spacewalks or operate the space station's robotic arm, and conduct multiple science and technology experiments during their extended stay in space.

Other Astronaut Responsibilities In addition to their roles on special flights, NASA astronauts participate actively in many other areas of JSC. Working in Safety, Engineering, and the International Space Station and Space Shuttle Programs, they provide early design input and operational spaceflight expertise. Many senior astronauts remain with the astronaut office, mentoring younger astronauts and ensuring continuity of information, while others move in to management roles at the Center. There are numerous contributions astronauts make. Just a few are mentioned below:

- Monitor the Earth from orbit and document changes in our environment
- Assist in developing new technologies and capabilities to continue humankind's advance in space, including a plasma-based interplanetary rocket
- Participate in long-term studies of the effects that spaceflight has on human health and the analogy to life on Earth, including studies in osteoporosis and neurovestibular diseases
- Track technical design, development, operations and safety issues
- Serve as spacecraft communicators ("capcoms") for space shuttle and the International Space Station missions – provide primary communication contact for crews
- Aid in the design and development activities for advanced vehicles and systems such as the X-38 and space shuttle cockpit upgrades





Factoids

1st Woman Pilot

U.S. Air Force Colonel Eileen Collins became the first female space shuttle commander when she flew *Discovery* in 1995. Even more notably, she became the first woman to command a U.S. spacecraft of any kind when she flew as commander of *Columbia* in 1999.

1st Hispanic in Space

When space shuttle *Columbia* launched in 1986, it took along the first Hispanic-American astronaut. Franklin R. Chang-Díaz, originally from Costa Rica, has flown on six shuttle missions to date.

Astronaut Candidate Selection

Astronaut candidates undergo one of the world's most selective processes – only 310 of the 38,211 applicants have been selected as astronauts. That's a less than one in a hundred chance of being selected.

Voting in Space

Astronauts can vote in space, but only those registered to vote in the state of Texas. In November 1997, Astronaut David Wolf voted via e-mail from the Mir Space Station, becoming the first American to vote from space. He received his ballot for the Houston mayoral race by way of Moscow from the Harris County elections chief.

Record Setting Spacewalks

While preparing and relocating the Pressurized Mating Adapter 3 and getting the Multi-Purpose Logistics Module ready for International Space Station delivery, Astronauts James Voss and Susan Helms completed the longest EVAs in U.S. history at 8 hours and 55 minutes. An unprecedented 18 EVAs were performed in 2001 for the International Space Station assembly.